

Appl. No. 10/643,669
Docket No. 9346
Amdt. dated 26 November 2007
Reply to Office Action mailed on 3 July 2007
Customer No. 27752

REMARKS

Claim Status

Claims 1, and 3-50 are pending in the application, of which Claims 1 and 3-36 are rejected and Claims 37-50 are withdrawn. Herein, Applicants amend Claims 1, 3-4, 6-7, and 19; cancel Claims 20-22, 24, and 29-50; and add no claims; WHEREUPON Claims 1, 3-19, 23, and 25-28 remain to be examined. The application contains 1 independent claim and 23 total claims. No additional claims fees are believed to be due.

Claims 1, and 3-4 are amended to more particularly point out and distinctly claim the subject matter which Applicants regard as their invention by indicating preferred characteristics of the filter particles and, for Claim 1, by indicating that the filter is operable to remove microorganisms. Claim 1 is also amended to correct punctuation. Claims 6 and 7 are amended to more particularly point out and distinctly claim the subject matter which Applicants regard as their invention by indicating preferred bacterial and viral removal characteristics of the water filter device. Claim 19 is amended to depend from Claim 1. Basis for the amendments may be found in the original claims and specification.

Claims 20-22, 24, and 29-50 are cancelled without prejudice. Claims 37-50 are cancelled merely to comply with the requirement to cancel claims drawn to a non-elected invention.

It is believed these changes do not involve any introduction of new matter. Consequently, entry of these changes is believed to be in order and is respectfully requested.

Alleged Obviousness over Clack, in view of Koslow, Derbyshire, and Birdsong

Claims 1, 3, 5-7, 12-14, 16-17, 19, 20-22, and 26-27 are rejected under 35 USC §103(a) as allegedly being unpatentable over USPN 4,997,553 ("Clack"), in view of USPN 6,630,016 ("Koslow"), USPN 6,630,016 ("Derbyshire"), and USPN 5,131,277 ("Birdsong"). Herein, Applicants cancel Claims 20-22, and as such, Applicants submit

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that the rejection is moot as applied to these claims. Applicants respectfully traverse the rejection as applied to the remaining amended claims for the reasons set forth below.

The Office Action concedes that Clack fails to disclose a water filter material comprising filter particles consisting of mesoporous activated carbon and the F-BLR of the claimed filter. The Office Action states that Koslow teaches a filter device comprising a cartridge containing filter material comprising activated carbon filter particles for purifying water containing bacteria. The Action also states that Koslow teaches an F-BLR of greater than about 2 logs and an F-VLR of greater than about 1 log. The Action states that Derbyshire teaches mesoporous activated carbon powders used as adsorbents of large molecules taking advantage of high pore surface area for increased adsorption. The Action asserts that it would have been obvious to the skilled person to substitute mesoporous activated carbon particles for the [microporous] activated carbon structure of Koslow into the Clack's filter for effectively increasing the adsorption of large molecules in water as suggested by Derbyshire.

Koslow discloses a filter comprising, among other things, a filter medium comprising: (a) a microporous structure comprising active particles; and (b) a microbiological interception enhancing agent comprising a cationic material plus a biologically active metal (col. 1, lines 29-64). Importantly, the structure is described as being microporous in that it has a mean free flow path of less than about 2000 nm (col. 1, line 32; col. 3, lines 42-44), i.e. it has a microporous inter-particle pore volume. In contrast, Applicants filter comprises, among other things, a filter material formed at least in part from a plurality of filter particles consisting of mesoporous activated carbon, where the sum of the sum of the mesopore and macropore volumes of the filter particles is between about 0.2 mL/g and 2 mL/g; wherein mesopore means an intra-particle pore having a diameter between 2 nm and 50 nm, and macropore means an intra-particle pore having a diameter greater than 50 nm. Koslow is void of any mention, teaching, suggestion, or motivation to use activated carbon as recited in Applicants claims in a filter for providing potable water, let alone in a filter operable to remove microorganisms.

Koslow's deficiency is not remedied by Derbyshire. Derbyshire discloses processes for activating carbon and processes for using the same. Derbyshire teaches that "[A]ctivated carbons may be utilized in various applications to treat waste water, to recover solvents from process streams, to purify air and gases, to reduce gasoline vapor

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emissions and in gold recovery (col. 1, lines 19-22)" and "... mesoporous carbons are used for the adsorption of large molecules such as color bodies (col. 1, lines 32-36, emphasis added)". Nowhere does Derbyshire (or Birdsong, which teaches a certain flow rate) teach or suggest, as recited in Applicants' claims, a low-pressure water filter for treating untreated drinking water, comprising, among other things, a filter material formed at least in part from a plurality of filter particles consisting of mesoporous activated carbon, where the sum of the sum of the mesopore and macropore volumes of the filter particles is between about 0.2 mL/g and 2 mL/g; wherein mesopore means an intra-particle pore having a diameter between 2 nm and 50 nm, and macropore means an intra-particle pore having a diameter greater than 50 nm, wherein the filter is operable to remove microorganisms.

Applicants submit that they have surprisingly found that mesoporous activated carbon, as claimed, is useful in the removal of bacteria and viruses from water. Applicants demonstrate this, e.g. in the results shown in Figures 7a and 7b of USSN 10/464,210, the substance of which is incorporated by reference at page 1 of the instant application, where the performance of a filter according to the invention (mesoporous RGC) is compared to that of a conventional filter (microporous coconut). As can be seen in Fig. 7a, the inventive filter is effective in removing *E. coli* for about 240 L of cumulative water volume, whereas the conventional filter fails at less than 40 L. As can be seen in Fig. 7b, the inventive filter is effective in removing MS-2 for about 80 to 100 L of cumulative water volume, whereas the conventional filter fails at less than 20 L. As demonstrated, all activated carbons are not alike, and cannot simply be interchanged with a reasonable expectation of success.

For these reasons, Applicants submit that the obviousness rejections, as applied to the amended claims, is improper and should be withdrawn.

Alleged Obviousness over Clack, in view of Koslow, Derbyshire, and Birdsong, (the "Base References") in further view Additional References

Claim 4 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 5,371,221 ("Sipos"). Claim 8 is rejected

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under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 3,670,892 ("Baerg"). Claims 9-10 and 24 are rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 4,147,631 ("Deines"). Claims 11 and 25 are rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of Deines and USPN 3,333,703 ("Scavuzzo"). Claim 15 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 4,681,677 ("Kuh"). Claim 18 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 6,117,319 ("Cranshaw"). Claim 23 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 5,707,518 ("Coates"). Claim 28 is rejected under 35 USC §103(a) as allegedly being unpatentable over the Base References in further view of USPN 6,123,837 ("Wadsworth"). Claim 24 is cancelled herein, and as such, Applicants submit the rejection is moot as applied thereto. Applicants respectfully traverse the rejection as applied to the remaining amended claims for the reasons set forth below.

Applicants renew their argument above as it relates to the Base References. Applicants submit that deficiencies of the Base References are not remedied by the teachings of any of the Additional References alone or in combination, and that Claims 4, 8-11, 15, 18, 23, 25, and 28 are non-obvious, at least by virtue of their dependence on Claim 1, which claims a low-pressure water filter for treating untreated drinking water, comprising, among other things, a filter material formed at least in part from a plurality of filter particles consisting of mesoporous activated carbon, where the sum of the sum of the mesopore and macropore volumes of the filter particles is between about 0.2 mL/g and 2 mL/g; wherein mesopore means an intra-particle pore having a diameter between 2 nm and 50 nm, and macropore means an intra-particle pore having a diameter greater than 50 nm, wherein the filter is operable to remove microorganisms.

For these reasons, Applicants submit that the obviousness rejections, as applied to the claims, is improper and should be withdrawn.

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Conclusion

This response represents an earnest effort to place the present application in proper form and to distinguish the invention as claimed from the applied reference(s). In view of the foregoing, entry of the amendments presented herein, reconsideration of this application, and allowance of the pending claim(s) are respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is kindly invited to telephone the undersigned attorney.

Respectfully submitted,

THE PROCTER & GAMBLE COMPANY

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